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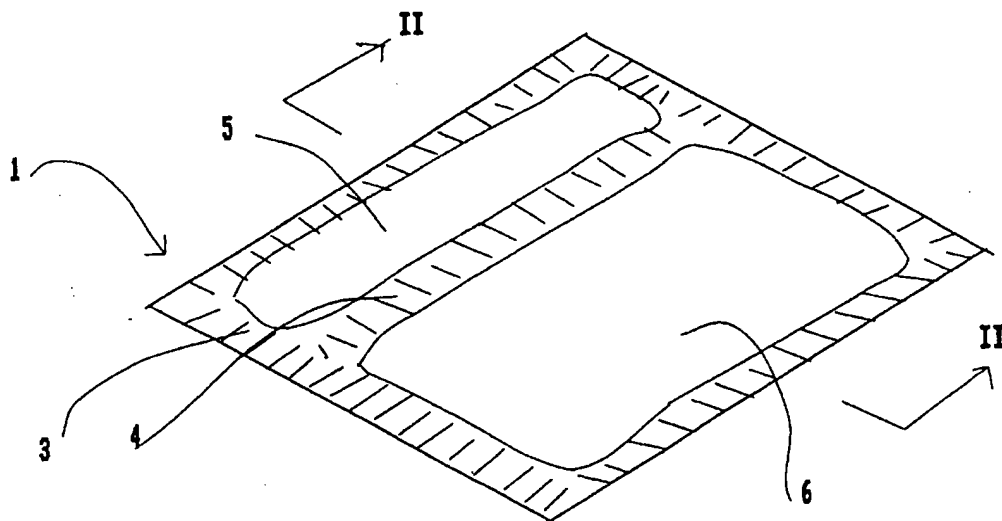
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(21) International Application Number: PCT/US97/06302 (22) International Filing Date: 17 April 1997 (17.04.97) (30) Priority Data: 9607958.7 17 April 1996 (17.04.96) GB (71) Applicant (for all designated States except US): S.C. JOHNSON & SON, INC. [US/US]; 1525 Howe Street, Racine, WI 53403 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): AHMED, Anjum, Fatima [GB/GB]; 11 Trumpsgreen Avenue, Virginia Water, Surrey GU25 4EW (GB). HART, Gerald, L. [GB/GB]; 38 Villiers Avenue, Surbiton, Kingston upon Thames, Surrey KT5 8BD (GB). STEDMAN, Andrew, Philip, Wilson [GB/GB]; Oakbank, Honeysuckle Lane, Headley Down, Hants GU35 8EH (GB). (74) Agents: HOUSER, David, J. et al.; S.C. Johnson & Son, Inc., Patent Section, 1525 Howe Street, MS077, Racine, WI 53403 (US).		(81) Designated States: JP, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: FABRIC CLEANING



(57) Abstract

A stain removal pack that includes a wrapper (1), a fabric sheet (8) contained within the wrapper, and a stain removing liquid contained within the wrapper. The wrapper also contains a non-chlorine bleach. Preferably the bleach is stored within the wrapper (1) separately from the cleaning liquid (7). Preferably the cleaning liquid (7) is stored within a frangible container that can be broken open by finger pressure on the exterior of the wrapper.

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FABRIC CLEANING

5 Technical Field

The present invention relates to sheets of fabric impregnated with a cleaning liquid for use in removing stains from clothing.

Background Art

10 Products comprising an impermeable wrapper containing a sheet of fabric
impregnated with a cleaning liquid, which may be water, a hydrocarbon solvent, or
a mixture of both, and which may contain a surfactant are on sale in some
European countries for removing stains from clothing. The wrapper is sized so that
it will fit inside a pocket or handbag, so that the users can carry it with them and
15 use it to remove soiling, e.g. caused by spillages of food or drink, before the stain
produced by the soiling becomes difficult to remove. One product on sale in Spain
uses a fabric sheet impregnated with a mixture of water, a surfactant, and an
organic solvent. These products are often described as stain removing wipes.

20 It would be desirable to provide more effective stain removing wipes.

Disclosure of Invention

According to the present invention a stain removal pack comprises

- 25 a) a wrapper,
b) a fabric sheet contained within said wrapper,
c) a stain removing liquid contained within said wrapper,

wherein the wrapper also contains

d) a non-chlorine bleach.

5

The wrapper will normally be sized to fit inside a pocket. Suitable wrappers are well-known and may comprise flexible plastics material e.g. sheets joined at their edges. The wrapper is preferably not more than 10 mm thick, more preferably not more than 5 mm thick, and is bounded by an edge, the total length of which is not
10 more than 400 mm, more preferably not more than 350 mm. The wrapper may conveniently be substantially rectangular in plan with dimensions of not more than 100 mm x 75 mm.

15

The wrapper will normally be impermeable to liquid so as to retain the liquid.

However one possibility is to have a dry fabric sheet and a separate container within the outer wrapper for the liquid. The liquid can be added to the dry fabric sheet after the sheet and the container of liquid have been removed from the wrapper, in which case it is not necessary for the wrapper to be impermeable to liquid.

20

The nature of the fabric sheet is not critical provided that it absorbs the stain removing liquid. Thus the fabric can be a viscose rayon fabric. The sheet is preferably not excessively large as a large sheet may be more difficult to manipulate. The sheet may for example have an area of less than 4×10^4 sq. mm,
25 for example less than 2×10^4 sq. mm. An example of a typical size sheet may be one which is 150 mm x 128 mm.

The stain removing liquid may be water, an organic solvent, or mixtures of water and an organic solvent. Where mixtures of water and organic solvent are used it is

not essential that the organic solvent should be completely miscible with water. Organic solvents suitable for use in the present invention will be readily apparent to those skilled in the art. Examples of solvents which may be used are the terpenes, e.g. d-limonene, the alkanols, e.g. isopropanol, octan-1-ol, the glycol ethers, e.g. tripropylene glycol,

5

In a preferred form of the invention the amount of organic solvent will be small in relation to the amount of water. Thus the weight ratio of water to organic solvent may for example be in the range 10:1 to 50:1..

10

The organic solvent is provided to help remove greasy stains.

The package preferably also contains a surfactant to improve the performance of the stain removing liquid. This is most conveniently stored within the package dissolved in the stain removing liquid.

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The surfactant may, for example, be an anionic surfactant. Examples of suitable surfactants are the alkali metal salts of alkyl sulphuric acid, for example those with an alkyl chain, preferably a straight chain, containing from 10 to 20 carbon atoms, e.g. sodium lauryl sulphate.

20

The surfactant may also be a non-ionic surfactant, e.g. the reaction product of a long chain alkanol and an alkylene oxide. Thus the long chain alkanol may contain a chain, preferably a straight chain, containing from 10 to 20 carbon atoms. In general the surfactant will be derived from a mixture of alkanols within this range e.g. 13 to 15 carbon atoms. The alkanol may be reacted with 4 to 12 molecules of alkylene oxide, e.g. ethylene oxide, per molecule of

25

alkanol.

A mixture of anionic and non-ionic surfactants may be used.

5 The weight ratio of water to surfactant may for example be in the range 10:1 to 30:1, preferably 14:1 to 25:1..

10 The non-chlorine bleach is preferably a peroxy bleach, but reducing bleaches may also be used.

The bleach may be a liquid peroxy compound, e.g. hydrogen peroxide, or a solid, e.g. the salt of a peroxy acid, which dissolves in the stain removing liquid..

15 Where the bleach is liquid the most convenient method of storing it within the package is to include it within the stain removing liquid stored within the wrapper.

However, this may facilitate decomposition of the peroxide during storage. It is therefore preferred to store the bleach within the wrapper separately from the stain removing liquid. This may be achieved by storing the fabric sheet impregnated with solid bleach within the wrapper separately from stain removing liquid.

20 Alternatively the fabric sheet impregnated with stain removing liquid may be stored within the wrapper separately from a solid bleach. If this alternative is used it may be more difficult to obtain a good dispersion of the bleach in the stain removing liquid before use.

25 It is possible to store the various components within the wrapper in such a manner that they are removed separately and are brought together after the user has

removed them from the wrapper. Preferably, however, the wrapper is impermeable to liquids and any components stored separately within the wrapper can be brought together by the user before the outer wrapper is opened. For example the liquid may be stored in a frangible container which can be broken open by finger pressure on the exterior of the wrapper before the wrapper is opened or a frangible partition
5 within the wrapper can be opened by finger pressure..

The use of peroxide gives a significant improvement in the removal of stains using the product. However, we have found that the presence of peroxide can, in some cases, cause yellowing of the portion of the clothing to which the liquid is applied .
10

In order to overcome this we have devised a modification of the invention in which a bleach deactivating agent is included in the liquid applied to clothing. The nature and amount of the bleach deactivation agent is chosen such that the initial activity of the bleach is sufficient to contribute to the removal of stains but is decreased
15 over time by the action of the bleach deactivating agent to leave no significant amount of bleach remaining on cloth treated to remove a stain. Preferably sufficient deactivating agent is provided to react with all the bleach initially present.

Where the bleach is an oxidizing bleach then a reducing agent may be used as the
20 bleach deactivation agent. An example of a suitable bleach deactivation agent for use with peroxy bleaches is a bisulphite salt, e.g sodium bisulphite.

The bleach deactivating agent will be stored separately from the bleach within the wrapper until the user wishes to remove a stain. Thus, where a solid peroxide is
25 stored separately from the stain removing liquid, the deactivating agent may be dissolved in the stain removing liquid.

Where a bleach deactivator is used:

Liquid - part A

5	Water	93.5% - 78.9%
	reducing agent	3.0 - 6.0% sodium bisulphite
	anionic surfactant	0.2 - 3.0% sodium lauryl sulphate
	non-ionic surfactant	0.2 - 3.0% C13-C15 linear alcohol 8EO
	organic solvent	2.0 - 6.0%
10	perfume	1.0 - 3.0%
	preservative	0.1%

Powder - part B

	dry oxidizing agent	3.0 - 6.0% sodium hydrogen peroxycarbonate.
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The percentages are weight percentages and are based on the total weight of the composition when all the components are mixed together.

20 In the above formulations the liquid is used to impregnate a fabric sheet. The fabric sheet may for example be 100% viscose rayon fibre with typical dimensions of 150 mm x 128 mm.

The amount of liquid contained within the wrapper, e.g. used to impregnate the fabric sheet, may be for example 1 - 4 g.

25

Best Mode of Carrying Out the Invention

The invention will now be described with reference to the accompanying Examples.

Example 1

- 5 This example shows the production of an impregnated fabric wipe in accordance with the invention which contains a non-chlorine bleach but does not contain a bleach deactivator. A two part formulation was used comprising a liquid (Part A) and a powder (part B).

The composition of the liquid (part A) was

10	Ingredient	% wt
	Deionized water	87.56
	Anionic surfactant	1.9
	Ethylene oxide derivative	1.9
	Isopropanol	0.95
15	d-Limonene	0.95
	Tripropylene glycol methyl ether	0.95
	Octan-1-ol	0.95
	Preservative	0.08

- 20 The anionic surfactant was sodium lauryl sulphate in the form of 28% active material. The ethylene oxide derivative was an ethoxylated alkanol derived from the reaction of ethylene oxide with a synthetic alkanol in the ratio of 8 molecules of ethylene oxide per molecule of alkanol. The preservative was a commercially available material known as Bodoxin.

25

Packaged wipes were prepared by adding 0.15 g of powder B to a dry wipe fabric

(dimensions 130 mm x 147 mm) within a sachet. Just prior to testing liquid (part A of the composition) (3.0g) was added to the sachet.

Tests were carried out as described below. The results are shown in Table 2.

Comparative Test A

This is a comparative test not according to the invention

A one part formulation was used consisting of a liquid (A).

The composition of the liquid (A) was

Ingredient	% wt
Deionized water	95.72
Anionic surfactant	2.0
Ethylene oxide derivative	2.0
d-Limonene	0.2
Preservative	0.08

The anionic surfactant and non-ionic surfactants and preservative were the same as in Example 1.

Six different stains were applied to white 1005 cotton cloth. 1 drop of each stain was applied to the fabric in each case. Each stain was allowed to absorb on to the fabric and any excess was removed with a spatula. These stains were coffee, tea, red wine, spaghetti bolognese sauce, sesame oil, melted butter.

The liquid (3.0g) was applied to a dry wipe fabric (130 mm x 147 mm) to produce an impregnated wipe. A fresh fabric wipe was used for each stain. Each stain was

10

- cleaned using the following method. Twenty circular movements around the periphery of the stain (to reduce the formation of a halo of a different colour where the stain had been) were followed by twenty motions up and down across the stain, to remove the body of the stain. The fabrics were then allowed to dry naturally before stain removal evaluation.

Each stain was evaluated using the following system for grading

For stain removal

- 10 0 = No removal of stain
 5 = Complete removal of stain

For halo effect

- 0 = No extra halo from stain
 5 = Extremely bad halo left

- 15 The results are shown in Table 1.

Example 2

A two part formulation was used comprising a liquid (Part A) and a powder (Part B).

- 20 The composition of the liquid (Part A) was

<u>Ingredient</u>	<u>% wt</u>
Sodium metabisulphite	4.76
Deionized water	82.8
25 Anionic surfactant	1.9
Ethylene oxide derivative	1.9
Isopropanol	0.95
d-Limonene	0.95

Tripropylene glycol methyl ether	0.95
Octan-1-ol	0.95
Preservative	0.08

5 The anionic surfactant, the ethylene oxide derivative, and the preservative were as in Example 1.

Part B (the powder) was sodium hydrogen peroxycarbonate in an amount of 4.76% of the total composition (part A plus part B).

10 The powder (part B)(0.15g) was introduced on to a dry wipe fabric (130 mm x 147 mm) and the liquid (part A) was then introduced on to the fabric wipe. Stain removal tests were carried out as in Comparative Test A. The results are given in Table 1.

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Claims:

1. A stain removal pack which comprises
 - a) a wrapper,
 - 5 b) a fabric sheet contained within said wrapper,
 - c) a stain removing liquid contained within said wrapper,
wherein the wrapper also contains
 - d) a non-chlorine bleach.
- 10 2. A stain removing pack according to claim 1 wherein the stain removing liquid comprises water.
3. A stain removing pack according to either one of claims 1 or 2 wherein the wrapper has a thickness of not more than 10 mm.
- 15 4. A stain removing pack according to any one of the preceding claims wherein the wrapper is bounded by an edge which has a total length of not more than 400 mm.
- 20 5. A stain removing pack according to any one of the preceding claims wherein the wrapper is impermeable to liquid.
6. A stain removing pack according to any one of the preceding claims wherein the cleaning liquid is a mixture of water and organic solvent in the weight ratio of
25 10:1 to 50:1.
7. A package according to any one of the preceding claims which contains a surfactant.

solid bleach stored within the wrapper separately from the cleaning liquid and the bleach deactivator is dissolved in the cleaning liquid.

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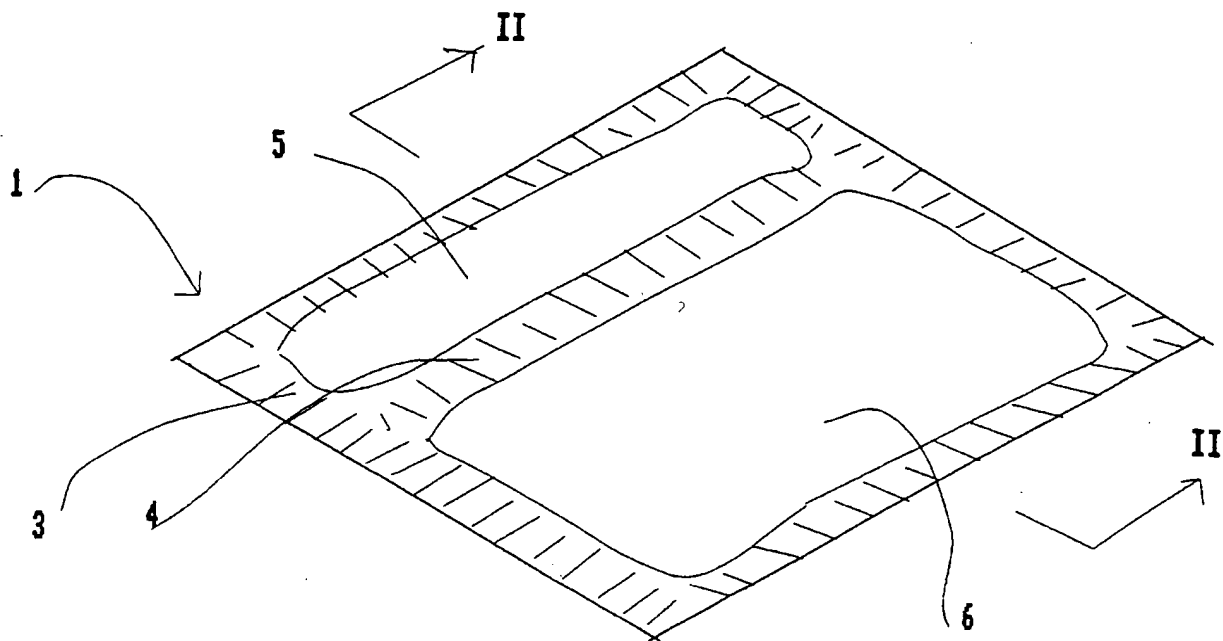


Figure 1

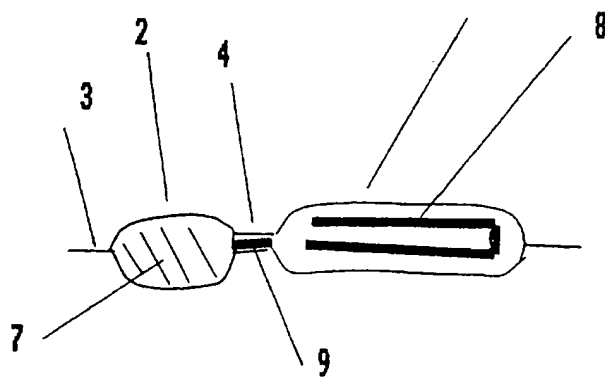


Figure 2

INTERNATIONAL SEARCH REPORT

Intern. al Application No
PCT/US 97/06302

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A47L25/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 A47L B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 1 202 856 A (BRETONNIER ET AL) 14 January 1960 see page 1, left-hand column, line 36 - page 2, left-hand column, line 15; figure 1	1,2,5,10
A	WO 93 10019 A (FARMER) 27 May 1993	
A	US 3 196 478 A (BAYMILLER ET AL) 27 July 1965	
A	DE 20 28 691 A (JOCHER) 10 August 1972	

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

28 August 1997

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NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

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Van Gelder, P

INTERNATIONAL SEARCH REPORT

Information on patent family members

Internat'l Application No

PCT/US 97/06302

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 1202856 A	13-01-60	NONE	
WO 9310019 A	27-05-93	AU 2908592 A GB 2275246 A,B ZA 9208716 A	15-06-93 24-08-94 10-05-93
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